

## **ABSTRACT**

5           The present invention relates to novel methods and devices for differentiating in a  
patient parathyroid diseases, such as hyperparathyroidism and related bone diseases,  
from normal or non-disease states. One detects whole or non-fragmented (1 to 84)  
parathyroid hormone in a biological sample and also a large non-whole parathyroid  
hormone peptide fragment that can function as a parathyroid hormone antagonist. By  
10 either comparing values or using independently the value of either the large non-whole  
parathyroid hormone peptide fragment, the whole parathyroid hormone, or the  
combination of these values one is able to differentiate parathyroid and bone related  
disease states, as well as differentiate such states from normal states.

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